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EXAMINER	
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2618	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/531,078	GAINEY ET AL.	
	Examiner	Art Unit	
	Janelle N. Young	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 6, 10, 17, 26, and 39-41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

2. Claim 38 is objected to because of the following informalities:

Claim 38, which depends on claim 19 does not provide proper antecedent basis for "the criteria". It appears claim 38 was intended to depend on claim 37. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 10, 17, 26, 40, and 41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter [**third IF signal path** and **fourth IF signal path**] which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 4-14, 15-17, 22-23, 30-35, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leslie et al. (US 6,404,775), hereinafter Leslie in view of Judd et al. (US 2004/0110469), hereinafter Judd.

Regarding apparatus claims 1, 11, and 39, Leslie teaches a frequency translating repeater (Col 4; 42-51) for use in a time division duplexing communication system, the frequency translating repeater comprising: at least two receivers (Col 9; 65 – Col 10; 16, Forward Translation means, "receiver" 134) capable of receiving transmissions on at least first and second frequency channels (Col 9; 65 – Col 10; 16, See 800 Mhz-band and 1.9 Ghz-band); at least one transmitter capable of transmitting on the first frequency channel (Col 9; 65 – Col 10; 16, See reverse translation means, "transmitter" 134); at least one transmitter capable of transmitting on the second frequency channel (Col 9; 65 – Col 10; 16, See reverse translation means, "transmitter" 134); a detector circuit configured to detect if a signal is present (Col 11; 9-26 See "RSSI detector 342 may be used...indicating that the channel is active) on one of two frequency channels associated with the frequency translating repeater (Col 11; 9-26 See forward 800 Mhz and Col 11; 49+ See 1.9 Ghz) and for detecting a receive power level of the signal (Col 11; 9-26 See RSSI detector 342) ; a frequency translator configured to change a

frequency channel associated with the signal from an initial one of the first and second frequency channels to a subsequent one of the first and second frequency channels (Col 4; 42-51); a gain control circuit configured to adjust a gain value of the signal at least in part based on the received detected signal power detected by the detector circuit (Col 11; 9-26 See "The RSSI detector 342...produces a responsive AGC signal" and Col); a microprocessor capable of configuring the first and second frequency channels based on pre-determined parameters stored therein (Col 14; 22-37 See "programmable microprocessors"), wherein configuration of a specific frequency for at least one of the first and second frequency channels is based on the pre-determined parameters, and the pre-determined parameters include at least one of the following: regulatory transmitter power limitations, regulatory out-of-band emissions limitations, and frequency separation between the first and second frequency channels (Col 10; 36-49 See "government regulations...operating frequencies").

However, Judd in an analogous art teaches a gain circuit for adjusting a gain of the signal (Abstract; Fig. 24 & 44; and Page 12, Para 0199) and a delay circuit configured to add a delay to the signal to compensate for a signal detection interval, a gain adjustment interval, and a transmitter configuration interval (Fig. 24 & 75; Page 8, Para 0161; and Page 10, Para 0177).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the frequency-translating repeater of Leslie with the repeaters for wireless communication systems of Judd. Both Judd and Leslie disclosed frequency translating repeaters. The combination would have been obvious

because this approach may increase the area required for the antennas on the sides of the repeater and select a desired frequency (Page 7, Para 0141-Pages 8, Para 0160 of Judd).

As to claim 2, as applied to claim 1 above, Leslie teaches the delay circuit includes an analog storage device (Col 19; 42-60 See Buffers 546 and 548).

As to claim 4, as applied to claim 1 above, Leslie teaches the detector circuit includes a processor (Col 14; 22-37 See "programmable microprocessors")

As to claim 5, as applied to claim 4 above, Leslie teaches the detector circuit further includes an analog detection circuit (Col 11, 9-26).

As to claim 6, as applied to claim 1 above, Leslie teaches a gain control circuit has one of a gain value and an attenuation value associated therewith (Col 11; 9-26).

As to claim 7, as applied to claim 6 above, Leslie teaches the detector is further for detecting received signal strength of the signal, and the gain control circuit is further for using the received signal strength of the signal to adjust a gain value of the signal (Col 11; 9-26).

As to claim 8, as applied to claim 7 above, Leslie teaches the gain control circuit is further for controlling at least one of the gain value and the attenuation value based on a predetermined criteria to achieve a specific signal transmit output power (Col 11; 9-26).

As to claim 9, as applied to claim 8 above, Leslie teaches the predetermined criteria is for modifying the specific signal transmit output power and includes at least one of the following: frequency separation between a receive frequency and a transmit

frequency, a regulatory rule, a temperature, a received power level, a transmit power level, and a detected interference level (Col 11; 9-26 see "maintain the IF signal at normal levels" and Col 10; 36-49 See Government regulations).

As to claim 12, as applied to claim 11 above, Leslie teaches the gain control circuit is further configured to adjust the gain value based at least in part on criteria including which of the one of the two frequency channels the signal is received on, and which of the other of the two frequency channels is changed to (Col 10; 58 – Col 11; 26).

As to claim 13, as applied to claim 12 above, Leslie teaches the criteria further includes at least one of a regulatory rule for transmission, an operating temperature, and frequency separation between receive and transmit frequencies (Col 10; 36-49).

As to claim 14, as applied to claim 12 above, Leslie teaches the criteria further includes a distance between a receive frequency and a transmit frequency, and wherein the automatic gain control circuit is further configured to apply more filtering to the signal based on the distance (Col 11, 1-8).

Regarding Claim 15, Leslie teaches a frequency translating repeater (Col 4; 42-51) for use in a time division duplexing (TDD) radio protocol system, the frequency translating repeater comprising: a detector circuit configured to detect if a signal is present (Col 11; 9-26 See "RSSI detector 342 may be used...indicating that the channel is active) on one of two frequency channels associated with the frequency translating repeater (Col 11; 9-26 See forward 800 Mhz and Col 11; 49+ See 1.9 Ghz); a frequency converter configured to convert the signal from a radio frequency (RF) signal to an

intermediate frequency (IF) signal (Col 10; 17-35 See output of mixer 158 at a predetermined IF); a frequency translator configured to change a frequency channel associated with the IF signal from the one of the two frequency channels to an other of the two frequency channels (Col 23; 41-60); a delay circuit configured to add a delay to the IF signal to compensate for a signal detection interval and a transmitter configuration interval (Col 23; 1-25 See buffer 548, through which the IF signal is passed); and a gain control circuit configured to adjust a gain value of the IF signal (Col 11; 9-26 See "control the gain", "IF signal").

As to claim 16, as applied to claim 15 above, Leslie teaches the gain control circuit is further configured to adjust the gain value of the IF signal at least in part based on a received detected signal power detected by the detector circuit (Col 11; 9-26).

The method claims 22-23 correspond to apparatus claims 1-2 and are rejected on the same basis as claims 1-2.

The method claim 30 corresponds to apparatus claim 11 and is rejected on the same basis as claim 11.

As to claim 31, as applied to claim 30 above, Leslie teaches the adjusting the gain value is based on a criteria including which of the one of the two frequency channels the signal is received on, and which of the other of the two frequency channels is changed to (Col 11; 9-26).

The method claim 32 corresponds to apparatus claim 13 and is rejected on the same basis as claim 13.

As to claim 33, as applied to claim 31 above, Leslie teaches the criteria further includes frequency separation between a receive frequency and a transmit frequency (Col 9; 1-8).

The method claim 34 corresponds to apparatus claim 15 and is rejected on the same basis as claim 15.

As to claim 35, as applied to claim 34 above, Leslie teaches the detecting and the adjusting are performed respectively on a first and a second signal path (Col 10; 58 – Col 11; 8 and Col 12; 12-30).

7. Claims 3, 10, 17-21, 24-25, 26-29, 33, 36-38, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leslie and Judd in view of Zhang (US 6,285,863), hereinafter Zhang.

As to claim 3, as applied to claim 1 above, Leslie fails to teach the delay circuit includes at least one surface acoustic wave filter configured for one or more of: analog signal storage and channel selection.

However, Zhang in an analogous art teaches a surface acoustic wave (SAW) filter configured for channel selection (Col 1; 51-54).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the frequency-translating repeater of Leslie and frequency-translating repeater & splitter of Judd with the SAW filter & splitters of Zhang. The combination would have been obvious allow for a better automatic gain control system and allow a signal to be delayed and select a desired frequency.

As to claim 10, as applied to claim 8 above, Zhang teaches an antenna for receiving the signal on one of the two frequency channels; a RF splitter coupled to the antenna, the RF splitter for splitting the signal onto a first path and a second path; first and second IF splitters disposed on the first and second paths, respectively, the first IF splitter for splitting the first path into a first IF signal path and a second IF signal path, the second IF splitter for splitting the second path into a third IF signal path and a fourth IF signal path, wherein the detector circuit and the gain control circuit are located on the first IF signal path and the third IF signal path, wherein the delay circuit is located on the second IF signal path and the fourth IF signal path, wherein the detector circuit includes a processor, the processor further includes a memory and wherein the predetermined criteria are stored in the memory (Abstract; Col. 1, 41-Col. 2, 13; Col. 6, 61-Col. Col. 7, 25; Col. 7, 62; Col. 8, 7; and Col. 10, 35-41 with respect to Col. 6, 14-18).

As to claim 17, as applied to claim 15 above, Zhang teaches an antenna for receiving the signal on one of the two frequency channels; a RF splitter coupled to the antenna, the RF splitter for splitting the signal onto a first path and a second path; first and second IF splitters disposed on the first and second paths, respectively, the first IF splitter for splitting the first path into a first IF signal path and a second IF signal path, the second IF splitter for splitting the second path into a third IF signal path and a fourth IF signal path, detector circuit is located on the first IF signal path and the third IF signal path, wherein the delay circuit is located on the second IF signal path and the fourth IF signal path; and the gain control circuit is located on the first IF signal path and the

second IF signal path (Abstract; Col. 1, 41-Col. 2, 13; Col. 6, 61-Col. Col. 7, 25; Col. 7, 62; Col. 8, 7; and Col. 10, 35-41).

As to claim 18, as applied to claim 17 above, Leslie fails to teach the detector circuit includes a logarithmic amplifier and wherein the output of the logarithmic amplifier is coupled to the gain control circuit for control thereof.

However, Zhang in an analogous art teaches a logarithmic amplifier connected to a gain control circuit (Col 2; 1-12).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the frequency-translating repeater of Leslie with the logarithmic amplifier of Zhang. The combination would have been obvious because logarithmic amplifiers can operate as power sensing devices.

As to claim 19, as applied to claim 18 above, Leslie further teaches the detector circuit and the automatic gain control circuit each have different bandwidths (Col 11; 1-26).

As to claim 20, as applied to claim 19 above, Leslie further teaches the automatic gain control circuit includes a processor and a memory storing a predetermined criteria and wherein the processor is configured to use the predetermined criteria to establish an offset gain value of the IF signal, resulting at least in part in a transmitter target output power independent of the detected receive power of the signal as detected by the detector circuit (Col 14; 22-37 and Col 11; 9-26).

As to claim 21, as applied to claim 20 above, Leslie further teaches the processor is further configured to: convert the output of the logarithmic amplifier to a digital signal; and establish the gain value of the IF signal using the digital signal (Col 11; 9-26).

Claim 24, as applied to claim 22 above, recites substantially the same limitations of claim 3 and is rejected by the same reasoning as above.

Claim 25, as applied to claim 24 above, recites substantially the same limitations of claim 5 and is rejected by the same reasoning as above.

As to claim 26, as applied to claim 22 above, Zhang further teaches splitting the signal onto a first path and a second path; and splitting the first path into a first IF signal path and a second IF signal path, and splitting the second path into third IF signal path and a fourth IF signal path, setting a gain associated with the signal (Col 11; 9-26); wherein the detecting if the signal is present further includes detecting if the signal is present on the first IF signal path or the third IF signal path, wherein the adding the delay to the IF signal further includes adding the delay to the signal on the second IF signal path or the fourth IF signal path (Abstract; Col. 1, 41-Col. 2, 13; Col. 6, 61-Col. Col. 7, 25; Col. 7, 62; Col. 8, 7; and Col. 10, 35-41).

As to claim 27, as applied to claim 26 above, Leslie further teaches the setting the gain further includes setting the gain in part based on a predetermined criteria (Col 10; 58- Col 11; 8).

As to claim 28, as applied to claim 27 above, Leslie further teaches the predetermined criteria includes at least one of the following: a distance between a

receive frequency and a transmit frequency, a regulatory rule, a temperature, a received power level, a transmit power level, and a detected interference level (Col 10, 36-49).

As to claim 29, as applied to claim 28 above, Leslie further teaches storing the predetermined criteria in a memory (Col 19; 28-41).

Claim 36, as applied to claim 35 above, recites substantially the same limitations of claim 18 and is rejected by the same reasoning as above.

As to claim 37, as applied to claim 36 above, Leslie further teaches using a predetermined criteria for the adjusting of the gain value of the IF signal (Col 11; 9-26).

Claim 38, as applied to claim 19 above, recites substantially the same limitations as claim 21 and is rejected by the same reasoning as above.

As to claim 40 (new), as applied to claim 34 above, Zhang teaches the criteria further includes splitting the signal onto a first path and a second path; and splitting the first path into a first IF signal path and a second IF signal path, and splitting the second path into third IF signal path and a fourth IF signal path, wherein the detecting if the signal is present further includes detecting if the signal is present on the first IF signal path or the third IF signal path, wherein the adding the delay to the IF signal further includes adding the delay to the signal on the second IF signal path or the fourth IF signal path (Abstract; Col. 1, 41-Col. 2, 13; Col. 6, 61-Col. Col. 7, 25; Col. 7, 62; Col. 8, 7; and Col. 10, 35-41).

The method claim 41 (new) corresponds to apparatus claim 40 and is rejected on the same basis as claim 40.

Conclusion

8. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on August 31, 2007 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle N. Young whose telephone number is (571) 272-2836. The examiner can normally be reached on Monday through Friday: 8:30 am through 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JNY
November 16, 2007

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SUPERVISORY PATENT EXAMINER